

Application No. 10/606,298

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

1. **(Original)** A toner process comprised of a first heating of a mixture of an aqueous colorant dispersion, an aqueous latex emulsion, and an aqueous wax dispersion in the presence of a coagulant to provide aggregates, adding a base followed by adding an organic sequestering agent, and thereafter accomplishing a second heating, and wherein said first heating is below about the latex polymer glass transition temperature (T_g), and said second heating is above about the latex polymer glass transition temperature.

2. **(Original)** A process in accordance with **claim 1** wherein said organic sequestering agent amount is from about 0.2 to about 2 pph by weight of toner.

3. **(Original)** A process in accordance with **claim 1** wherein said organic sequestering agent complexes or chelates with said coagulant that contains a metal ion resulting in a precipitate which is insoluble in the aqueous phase thereby proving for extraction of said coagulant metal ion.

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4. **(Original)** A process in accordance with **claim 1** wherein

i) said colorant dispersion contains a pigment optionally of about 0.1 to about 0.3 micron in diameter dispersed in water and an anionic surfactant, and further wherein said wax dispersion is comprised of submicron wax particles of optionally from about 0.1 to about 0.5 micron in diameter by volume, and which wax is dispersed in water and an anionic surfactant;

(ii) the resulting mixture of (i) with said latex emulsion being optionally comprised of submicron polymer particles of about 0.15 to about 0.4 micron in diameter and containing water and an anionic surfactant;

(iii) wherein the resulting blend possesses a pH of about 2.2 to about 2.8, and to which blend is added said coagulant of a polymetal halide to enable flocculation or aggregation of the resin, colorant and wax particles;

(iv) heating the resulting mixture of (iii) below the glass transition temperature (T_g) of the latex polymer to form toner sized aggregates;

(v) adding to the formed toner aggregates a second portion of a latex comprised of resin suspended in an aqueous phase containing an ionic surfactant and water;

(vi) retaining the mixture temperature at from about 80°C to about 95°C and allowing the pH to decrease to a value of from about 5 to about 7;

(vii) optionally reducing the pH of (vi) by the addition of an acid, and heating to optionally increase the coalescence time and to assist the fusion or coalescence of the toner aggregates and to obtain smooth particles;

(viii) washing the resulting toner slurry; and

(ix) isolating and drying the toner product.

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5. **(Original)** A process in accordance with **claim 1** wherein said organic sequestering agent is selected in an amount of about 0.2 to about 2 pph by weight of toner, and said agent is selected from the group consisting of ethylene diamine tetra acetic acid (EDTA), gluconal, sodium gluconate, potassium citrate, sodium citrate, a nitrotriacetate (NTA) salt; GLDA, the product of glutamic acid and N,N-diacetic acid; humic acid, fulvic acid, maltol and ethyl-maltol, penta-acetic and tetra-acetic acids.

6. **(Original)** A process in accordance with **claim 1** wherein the organic sequestering is a biodegradable compound and is a salt of methyglycineduacetic acid (MGDA), GLUDA, a salt of glutamate, or N,N-bis (carboxymethyl), ethylenediaminedisuccinic acid (EDDS).

7. **(Original)** A process in accordance with **claim 1** wherein the sequestering agent is ethylene diamine tetra acetic acid.

8. **(Original)** A process in accordance with **claim 1** wherein the toner gloss is controlled by the amount of a coagulant metal ion extracted by the sequestering agent.

9. **(Original)** A process in accordance with **claim 1** wherein the amount of sequestering agent utilized provides a mechanism for controlling the gloss of the toner, and wherein said gloss is increased by about 20 to about 35 ggu when said toner contains about 100 pph of a coagulant metal ion.

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10. **(Original)** A process in accordance with **claim 1** wherein said coagulant is selected from the group consisting of polyaluminumchloride (PAC), polyaluminum sulfosilicate (PASS), aluminum sulfate, zinc sulfate, and magnesium sulfate, and wherein said sequestering agent is selected in an amount of about 0.08 to about 0.2 pph by weight of toner.

11. **(Original)** A process in accordance with **claim 1** wherein said sequestering agent extracts from about 50 to about 100 percent of the crosslinking coagulant metal ion from said toner, and which agent is selected in an amount of about 0.5 about 1.5 pph by weight of toner.

12. **(Original)** A process in accordance with **claim 1** wherein said sequestering agent extracts about 60 to about 100 percent of the crosslinking ion from said toner when used in amounts of about 0.5 to about 1.5 pph by weight of toner, and resulting in a toner that enables high gloss.

13. **(Original)** A process in accordance with **claim 1** wherein said colorant dispersion is comprised of a pigment of about 0.1 to about 0.3 micron in diameter dispersed in water and an anionic surfactant, and wherein said pigment is present in an amount of from about 4 to about 15 weight percent.

14. **(Original)** A process in accordance with **claim 4** wherein said acid is nitric, sulfuric, hydrochloric, citric or acetic acid, and said coagulant is a polyaluminumchloride.

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15. **(Original)** A process in accordance with **claim 4 (v)** wherein there is added to the formed toner aggregates a second portion of latex comprised of submicron resin particles suspended in an aqueous phase containing an anionic surfactant, and wherein said second latex is selected in an amount of from about 10 to about 40 percent by weight of the initial latex (i) to form a shell thereover on said formed aggregates, and which shell is of an optional thickness of about 0.2 to about 0.8 micron, and wherein said coagulant is optionally a polymetal halide.

16. **(Original)** A process in accordance with **claim 4 (v)** wherein said added latex contains the same resin as the initial latex of (i), or wherein said added latex contains a dissimilar resin than that of the initial latex.

17. **(Original)** A process in accordance with **claim 4** wherein the aggregation (iv) temperature is from about 45°C to about 60°C, and wherein the coalescence or fusion temperature of (vii) is from about 80°C to about 95°C, and wherein said coagulant is a polyaluminum halide.

18. **(Original)** A process in accordance with **claim 4** wherein the time of coalescence or fusion is from about 2 to about 6 hours, and wherein the toner resulting possesses a smooth morphology.

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19. **(Original)** A process in accordance with claim 1 wherein said latex emulsion contains a resin, or a polymer selected from the group comprised of poly(styrene-alkyl acrylate), poly(styrene-1,3-diene), poly(styrene-alkyl methacrylate), poly(alkyl methacrylate-alkyl acrylate), poly(alkyl methacrylate-aryl acrylate), poly(aryl methacrylate-alkyl acrylate), poly(alkyl methacrylate), poly(styrene-alkyl acrylate-acrylonitrile), poly(styrene-1,3-diene-acrylonitrile), poly(alkyl acrylate-acrylonitrile), poly(styrene-butadiene), poly(methylstyrene-butadiene), poly(methyl methacrylate-butadiene), poly(ethyl methacrylate-butadiene), poly(propyl methacrylate-butadiene), poly(butyl methacrylate-butadiene), poly(methyl acrylate-butadiene), poly(ethyl acrylate-butadiene), poly(propyl acrylate-butadiene), poly(butyl acrylate-butadiene), poly(styrene-isoprene), poly(methylstyrene-isoprene), poly(methyl methacrylate-isoprene), poly(ethyl methacrylate-isoprene), poly(propyl methacrylate-isoprene), poly(butyl methacrylate-isoprene), poly(methyl acrylate-isoprene), poly(ethyl acrylate-isoprene), poly(propyl acrylate-isoprene), poly(butyl acrylate-isoprene), poly(styrene-propyl acrylate), poly(styrene-butyl acrylate), poly(styrene-butadiene-acrylonitrile), and poly(styrene-butyl acrylate-acrylonitrile).

20. **(Original)** A process in accordance with claim 1 wherein said latex emulsion contains a resin of a carboxylic acid selected from the group comprised of acrylic acid, methacrylic acid, itaconic acid, beta carboxy ethyl acrylate, fumaric acid, maleic acid, and cinnamic acid, and wherein said carboxylic acid is selected in an amount of from about 0.1 to about 10 weight percent.

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21. **(Original)** A process in accordance with **claim 1** wherein said wax dispersion contains a polyethylene wax, a polypropylene wax, or mixtures thereof, water, and an anionic surfactant, and wherein said wax is selected in an amount of from about 5 to about 20 weight percent.

22. **(Original)** A process comprised of heating a mixture of a colorant dispersion, and a latex emulsion in the presence of a coagulant, a base, and an organic sequestering agent, and wherein said heating involves a first heating and a second heating, and wherein the second heating is at a higher temperature than the first heating; and wherein said higher temperature is equal to about or above about the Tg of polymer or resin contained in said latex emulsion.

23. **(Original)** A process comprised of heating a mixture of a colorant dispersion, a latex emulsion, and an optional wax dispersion in the presence of a coagulant containing a metal ion, a base, and an organic sequestering agent, and wherein said heating involves a first heating and a second heating, and wherein said first heating is below about or equal to about the Tg of polymer or resin contained in said latex, and said second heating is at a higher temperature than the first heating; and wherein said higher temperature is equal to about or above about the Tg of polymer or resin contained in said latex emulsion.

24. **(Original)** A process in accordance with **claim 23** wherein said sequestering agent is added subsequent to the addition of said base.

25. **(Original)** A process in accordance with **claim 23** wherein said sequestering agent is added prior to the addition of said base.

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26. **(Original)** A process in accordance with **claim 23** wherein said colorant is black, cyan, magenta, yellow, green, orange, or mixtures thereof, and wherein said colorant is optionally present in an amount of from about 3 to about 12 percent by weight of toner.

27. **(Original)** A process in accordance with **claim 23** wherein there is further included in said mixture of colorant and latex a wax and a surfactant or surfactants, and wherein said surfactant is optionally present in an amount of from about 0.01 to about 10 percent by weight or from about 0.1 to about 0.5 percent by weight of toner components.

28. **(Original)** A process in accordance with **claim 1** wherein said colorant dispersion contains a pigment.

29. **(Original)** A process in accordance with **claim 28** wherein said pigment is carbon black.

30. **(Original)** A process in accordance with **claim 28** wherein said pigment is a cyan, a magenta, a yellow colored pigment, or mixtures thereof.

31. **(New)** A toner process comprised of a first heating of a mixture of an aqueous colorant dispersion, an aqueous latex emulsion, and an aqueous wax dispersion in the presence of a coagulant to provide aggregates, adding an organic sequestering agent, and thereafter accomplishing a second heating, and wherein said first heating is below about the latex polymer glass transition temperature (T_g), and said second heating is above about the latex polymer glass transition temperature.

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32. **(New)** A process in accordance with **claim 31** wherein a base is added prior to the addition of said organic sequestering agent.

33. **(New)** A process in accordance with **claim 31** wherein said sequestering agent is ethylene diamine tetraacidic acid.

34. **(New)** A process in accordance with **claim 1** wherein said colorant dispersion contains a pigment, a dye, or mixtures thereof.

35. **(New)** A process in accordance with **claim 1** wherein said colorant dispersion contains a cyan, a magenta, a yellow pigment, or mixtures thereof.

36. **(New)** A process in accordance with **claim 1** wherein said colorant dispersion contains a pigment of carbon black.